

REMARKS

The specification, claims and drawings have been amended without adding new matter. Claims 21-22 have been added. Claims 1, 3, 4, 9, 12, 14, 15, 17 and 20 have been amended. Claims 2, 16 and 19 have been canceled without prejudice. No additional claims fees are required. Nineteen (19) claims remain pending in the application: Claims 1, 3-15, 17-18 and 20-22. Reconsideration of claims 1, 3-15, 17-18 and 20 in view of the amendments above and remarks below and consideration of new claims 21-22 is respectfully requested.

Initially, Applicants acknowledge with appreciation the Examiner's willingness to take part in the telephonic interview on May 3, 2004. By way of this amendment, Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned at (858) 552-1311 so that such issues may be resolved as expeditiously as possible.

Summary of Applicant Initiated Examiner Interview

1. Per 37 CFR § 133(b), the following is a brief summary of the Examiner interview conducted May 3, 2004 via telephone between Scott Menghini, Attorney of Record, and Examiner Holly Harper. No exhibits were provided.

Claims 1 and 9 were discussed as they relate to U.S. Patent No. 5,340,997 (Kuo), U.S. Patent No. 6,027,388 (Jones et al.) and U.S. Patent No. 5,811,926 (Novich). Applicants indicated that the limitation of claims 16 and 19 would be amended into claims 1 and 9 to overcome the rejection in view of Kuo (since claims 16 and 19 were not rejected in view of Kuo). Regarding claim 9, Applicants noted that the same reasoning that there was no motivation to modify Novich with the teaching of Kim (as presented in Applicants' previous response), also applies such that there is no motivation to modify Novich to replace the emitter tips with emitter lines. Regarding claim 1,

Applicants indicated that Jones teaches the etching of circular emitter wells, e.g., for conical emitter tips. However, while it may be possible to etch linear wells using lithographic techniques, there is no suggestion in Jones that linear emitters, such as those described in Applicants specification, located within linear wells formed in the thickness of a top surface of a cathode substrate are known to be used for field emission displays. The Examiner requested that Applicants point to a portion of the specification that describe the recited emitter lines. Applicant also proposed adding new dependent claims to recite linear phosphor structure at an anode, which Applicants believe is not suggested by Jones. The examiner acknowledged Applicants position and agreed to fully consider such arguments once a response is filed. No agreement was reached.

Applicants also asked that the IDSs filed September 11, 2002, December 18, 2002 and August 29, 2003 be considered and initialed and a copy provided to Applicants. The Examiner will consider and return also with the next action from the Office.

Information Disclosure Statements

2. Applicant's thank the Examiner for returning initialed IDS forms for several information disclosure statements filed. However, as also requested in Applicants' response of November 10, 2003, Applicants request that the Examiner consider the references provided in the electronic information disclosure statements filed September 11, 2002, December 18, 2002 and August 29, 2003 and provide Applicants with an initialed copy indicating that the references were considered.

Furthermore, Applicants ask that the Examiner consider the IDS filed May 3, 2004 which includes art recently cited in related U.S. Application No. 09/877,509 (Docket No. 68583).

Drawings

3. The drawings are objected to under 37 C.F.R. §1.83(a) for failing to show every feature of the invention as claimed.

Applicants have amended the drawings and specification to include new FIG. 19 and supporting text that illustrates an embodiment where there are more than one emitter line within a given trench formed in the cathode substrate. Support for new FIG. 19 and the amended text of the application can be found at least in FIG. 5 and at page 9, lines 9-23 of the originally filed application. Accordingly, drawing sheet 3/13 has been amended to include new FIG. 19 and replaces the original drawing sheet 3/13. Thus, since the drawings now illustrate the noted feature, Applicants respectfully submit that the objection is overcome.

Claim Rejections - 35 U.S.C. §103

4. Claims 1, 2, 6, 8, 9, 12 and 15 stand rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent No. 5,340,997 (Kuo).

The limitation of claim 2 has been amended into claim 1, and claim 2 has been canceled. Applicants have amended claims 1 and 9 to include the limitations of claims 16 and 19, respectively. Claims 6, 8, 12 and 15 depend on claim 1. Since claims 16 and 19 are not rejected in view of Kuo and since claims 6, 8, 12 and 15 depend on claim 1, it is respectfully submitted that the rejection is overcome.

5. Claims 1, 2, 6, 12, and 15-17 stand rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent No. 6,027,388 (Jones et al.).

The limitations of claims 2 and 16 have been amended into claim 1, and claims 2 and 16 have been canceled.

Regarding claim 1, as presented in the telephone interview, Jones does not suggest both "in-laid linear isolation barriers formed within the thickness of a top

surface of the cathode substrate” and “one or more electron emitter lines for emitting electrons to a display screen formed within each of the one or more in-laid linear isolation barriers”, as recited in claim 1.

Jones teaches lithographic techniques to etch circular emitter wells, e.g., for conical emitter tips 510, for use in conventional field emission displays. However, while it may be possible to etch linear wells using lithographic techniques, there is no suggestion in Jones that linear electron emitters, such as those described by Applicants, are located within linear wells for use in field emission displays. By way of example, as described in Applicants specification, the emitter lines may be a continuous line of emitter material or a plurality of emitter portions (such as cones or nanotubes) that are positioned closely together in a linear fashion without any separating or insulating material positioned between the emitter portions on the surface of the in-laid isolation barrier (see, for example page 8, line 20 through page 9, line 3 and page 9, lines 14-15 of Applicants specification). It is further noted that U.S. Patent No. 5,340,997 (Kuo) illustrates an emitter line; however, as presented in Applicant’s response of November 10, 2003, this structure is for use as a current collector, not an emitter structure for the field emission display screen. Thus, simply because it may be possible to etch a linear well, does not provide the suggestion that the illustrated tip emitters of Jones be replaced by emitter lines to meet the limitations of claim 1.

Accordingly, it is submitted that Jones does not teach or suggest all of the limitations of claim 1. Claims 6, 12, 15 and 17 depend on claim 1. Thus, it is respectfully submitted that the rejection is overcome and should be withdrawn.

6. Claims 3, 7, 11 and 14 stand rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent No. 6,027,388 (Jones et al.), in view of U.S. Patent No. 5,811,926 (Novich).

It has been shown above that Jones does not render claim 1 obvious.

Claims 3, 7, 11 and 14 depend on claim 1. Novich adds no further teaching to suggest replacing the emitters 510 of Jones with linear emitters for a field emission display. Therefore, it is respectfully submitted that the rejection is overcome and should be withdrawn.

7. Claims 4 and 5 stand rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent No. 5,340,997 (Kuo), in view of U.S. Patent No. 5,019,003 (Chason).

It has been shown above that Kuo does not render claim 1 as amended to include the limitation of claims 2 and 16 obvious. Claims 4 and 5 depend on claim 1. Chason appears to teach a trace to couple to an emitter and adds no further teaching to suggest the limitations of claim 1. Therefore, it is respectfully submitted that the rejection is overcome and should be withdrawn.

8. Claims 9, 10, 13, and 18-20 stand rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent No. 5,811,926 (Novich).

Initially, Applicants note the Examiner's acknowledgement in the last paragraph of page 9 of the present office action that there is no motivation to combine the "emitter lines" of Kim with the device of Novich in order to meet the limitations of independent claim 9.

The same logic applies in the present rejection of independent claim 9, regardless of the assertion that line emitters would be cheaper and easier to make uniform over a large scale. That is, there is no motivation to modify Novich (e.g., replace the emitter tips within circular wells with emitter lines within linear wells) since such modification (whether through the teaching of Kim or through a matter of design choice) would render the prior art invention unsatisfactory for its intended purpose, which is prohibited by MPEP 2143.01. For example, as successfully presented in

response to the previous office action, by replacing the conventional emitter tips deposited in a circular apertures formed in the substrate of Novich with emitter lines, the geometry of the spacer unit would block or interfere with electron emission toward the display screen, which is against the teaching of Novich. For example, Novich describes that a spacer should not interfere with the transmission of energy such as electrons between the emitter panel and the display panel, which can cause optical defects (see col. 1, lines 44-46 and 52-54 of Novich), i.e., the passageways would not function as intended. The spacer is also taught to be dimensionally accurate so as to not visibly interfere with the operation of the image display panel (see col. 8, lines 14-16 of Novich). Novich also teaches that the spacer unit is specifically designed such that the fibers form passageways that align emitter tips with the corresponding passageways and corresponding portions of the display (see col. 21, line 66 through col. 22, line 2 of Novich).

On the other hand, if the geometry of the spacer unit were to be altered to accommodate emitter lines, the spacer unit would lose its ability to provide uniform mechanical support across the emitter region, which is necessary to provide low distortion, high brightness and uniform resolution (see col. 1, lines 45-46). This would be primarily due to the fact that there would be no intersecting portions of the fibers making the spacer unit, e.g., the fibers would extend across the substrate supported only at the ends, causing the middle to sag in the vacuum.

Thus, it is respectfully submitted that there is no motivation to modify Novich as proposed to meet the invention recited in claims 9, 10, 13 and 18-20. Therefore, the rejection of claims 9, 10, 13, and 18-20 is overcome and should be withdrawn.

New Claims

9. Newly submitted claims 21 and 22 are believed to be allowable

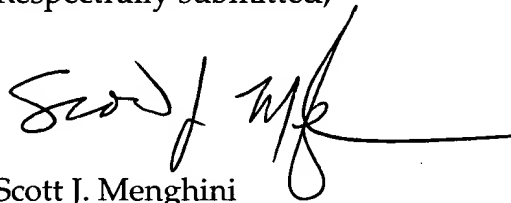
because they are directed to that which is not shown or suggested in the prior art.
Support for new claims 21 and 22 can be found at least at page 15, lines 20-24 and in
FIG. 10.

CONCLUSION

Applicants submit that the above amendments and remarks place the
pending claims in a condition for allowance. Therefore, a Notice of Allowance is
respectfully requested.

Respectfully submitted,

Dated: May 4, 2004

A handwritten signature in black ink, appearing to read 'Scott J. Menghini', followed by a long horizontal line extending to the right.

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ATTACHMENTS:

Replacement Sheet 3/13 including FIGS. 5 and 19

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